

CEO Facial Masculinity, Characteristics and Earnings Management

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ABSTRACT

The present study aimed to examine whether CEO facial masculinity and CEO characteristics help in predicting earnings management (EM). The analyses were based on a panel data of 260 companies listed in Bursa Malaysia over the period 2009 to 2019 with a final sample of 2860 observations. Panel data analysis with fixed effect model was utilized to estimate the results. The results revealed that using facial width-to-height ratio (fWHR) and testosterone (TESTN) as the proxies for CEO facial masculinity had a statistically significant effect on EM. This effect was positive, which indicated that the increasing dimension of fWHR and increasing levels of TESTN of a CEO were associated with higher levels of EM. The results also indicated that CEO turnover and CEO race had a significant influence on EM suggesting that non-Bumiputra CEO and high turnover of CEO are more likely to be associated with EM practices. The findings contribute to resolve the controversy in the results of prior studies regarding the influence of CEO facial masculinity on financial reporting quality. The study helps to understand and forecast CEO behaviour using a difficult-to-manipulate biological signal, as well as to the appointment of a new CEO based on their characteristics.

Keywords: CEO facial masculinity, CEO characteristics, earnings management.

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INTRODUCTION

Financial reporting's major purpose is to convey information to stakeholders about a company's financial performance and economic conditions, so that they can make informed decisions based on this information (Mahyuddin et al., 2020). Accordingly, the quality of financial reporting has been considered as a vital requirement by stakeholders that play a key role in eliminating information asymmetry and positively influence the decisions of investors (Almaqtari et al., 2021). Further, high quality financial reporting shows caution on earnings smoothing, and loss avoidance, which leads to lessen information asymmetry between management and investors or capital providers about a company's financial performance, hence improving investment decisions (Chen et al., 2011; Xu et al., 2012). Despite this, there is a failure in the principal function of financial reports in practice, because they are mostly found misrepresented, leading to earnings management, and decreasing users' capacity to make informed decisions (Cho et al., 2015). CEOs play an unlimited role in influencing financial reporting quality, they may use their accounting expertise to elevate the quality of financial reporting or be involved in earnings management (Jia et al., 2014).

Based on this background, the present study aimed to investigate the relationship between earnings management and CEO characteristics in terms of CEO facial masculinity, CEO accounting background, CEO turnover and CEO race. Recent studies have investigated CEO masculinity based on the facial masculinity metric by relating this issue to finance and accounting issues (Ahmed et al., 2019; Elsheikh et al., 2022; He et al., 2019; Jia et al., 2014). This study was built on the work of Jia et al. (2014) who advocated that an individual's level of masculinity has an impact on their behaviour, especially those in positions of leadership, such as CEOs. Further, the current study follows Stirrat and Perrett (2012) who studied the link between facial masculinity and the proclivity to cheat. They found that a highly masculine CEO is more prone than a less masculine counterpart to make decisions for his interests, such as utilising earnings management and manipulating tactics, regardless of the company's interests. Apart from CEO masculinity, several studies have focused on the characteristics of the CEO and their effects on financial decision-making. Some studies have focused on the experience and skills acquired (educational background, work experience, and turnover). Other studies were concerned with the origins

of his upbringing (culture and ethnicity/race). Nonetheless, the results of past studies are conflicting. This study will bridge the gap between biology, psychology studies, and the financial field by investigating the personality of the CEO through the three combined aspects (the biological aspect, the acquired experiences aspect, and the ethnic aspect).

The present study offers several contributions. First, this study provides an insight on CEO facial masculinity and contributes to resolving the debate in findings in previous studies' (e.g., Ellis, 2017; Lopez et al., 2013; Richard et al., 2014) by linking CEO masculinity and earnings management based on biological aspects of fWHR and testosterone. This is the first study – to the best of our knowledge, to investigate the effects of CEO facial masculinity on earnings management in Malaysia. Second, the study reconfirms prior findings by investigating the effect of CEO accounting background and CEO turnover on earnings management practices. Third, the current study provides evidence from an emerging economy; Malaysia which has a multiracial society by examining the influence of CEO race. The majority of prior studies in this regard are focused on developed countries with different races such as black and white, Hispanic and Non-Hispanic. This study uses Bumiputera (Orang Asli, Anak Negeri and Dayak) and non-Bumiputera (Chinese, Indians, and others) to represent CEO race which is unique to Malaysian cultural characteristics. Understanding the impact of all the tested variables could provide new and valuable insights and implications for investors, board members, analysts, and academics. Finally, the study provides additional evidence on the possibility of using biological and psychological science indicators in real business and financial environments. The study supports the use validity of facial structure ratio and testosterone levels on real-life executives' behaviour. The paper is organized as follows; the next section is devoted for literature review. Section three provides the research methodology. Section four discusses the results and section five concludes.

LITERATURE REVIEW

CEO Facial Masculinity

In human nature, facial characteristics have a significant impact on social behaviours (Ormiston et al., 2017; Stirrat & Perrett, 2010). While the mechanisms relating facial features to masculine conduct are still being debated in the neurosciences, the literature suggests that a person's facial features can be utilised as a biological marker of masculine behaviour (Stirrat & Perrett, 2012). According to biological studies, face masculinity in males is mostly determined by cranial bone growth during the pubertal period, which is influenced by the testosterone hormone. Because of the impact of other hormonal variables, testosterone is less directly linked to female face morphology (e.g., Lefevre et al., 2013). Testosterone is an anabolic steroid male sex hormone that aids in the development of the male reproductive system, including the testes and prostate, as well as boosting secondary masculine traits such as increased muscle and bone mass and hair growth (Mooradian et al., 1987). Further, it is made in the liver from cholesterol in a series of steps that result in inactive metabolites that bind to the androgen receptor and activate it to begin its function (Luetjens & Weinbauer, 2012). Male testicles secrete testosterone at a rate of 7 to 8 times that of adult female ovaries (Torjesen & Sandnes, 2004). In addition, in men, testosterone metabolism and daily production are around 20 times higher (Southren et al., 1965).

Kamiya et al. (2019) studied a sample of 1,162 unique CEOs in Execucomp (the largest 1,500 public US corporations) between 1993 and 2009 in non-financial industries to see if there was a link between facial masculinity and firm risk as evaluated by stock return volatility, financial leverage, and acquisitions. Their research yielded positive results between facial masculinity and firm risk. Likewise, Ahmed et al. (2019) studied a sample from 2006 to 2014, and 618 firm-year observations were collected from 134 individual CEOs in 104 banks in the United States. They discovered that banks run by CEOs who have more masculine face traits have more volatile stock returns and higher risk levels. Jia et al. (2014) indicated a link between CEO facial masculinity and several misreporting indicators such as SEC enforcement action, being named as a perpetrator, insider trading, and option backdating 164 CEOs from S&P 1500 businesses with 3,909 firm-years were included in their sample from 1996 to 2010.

Using 55 publicly listed Fortune 500 companies as a sample from 1996 to 2002, Wong et al. (2011) discovered that companies with male CEOs who have wider features (relative to facial height) have better financial performance. Elsheikh et al. (2022) used 260 companies listed on the Bursa Malaysia for the period from 2009 to 2019. Their sample included 405 unique CEOs from different races (Malay, Chinese, Indian, and others). The findings of their study revealed that high masculinity is positively associated with company performance among the non-Bumiputera group (Chinese, Indian). He et al. (2019) revealed that accomplishment motivation is the main feature predicted by fWHR in a sample of 1,193 Chinese analysts utilising 19,324 observations of yearly profit projections from the period 2004 to 2014. It was discovered that analysts with a high fWHR are more inclined to conduct company site visits and perform better.

Several studies reported that those with greater levels of circulating or baseline testosterone have a stronger desire for competitiveness and dominance, have less fear, and are more likely to engage in high-risk activities like gambling and drinking (Apicella et al., 2014; Pound et al., 2008). These people are also more egotistical, with a larger proclivity for cheating and a stronger need to retain their social status (Wong et al., 2011; Wright et al., 2012). Haselhuhn et al. (2015) did a literature review using meta-analysis for 4327 participants as total data from 33 documented articles until December 15th, 2014. The results showed that fWHR is a reliable predictor (and indicator) of male hostility or aggression. Jia et al. (2014) found that senior executives (CEOs) with more pronounced masculine facial attributes are more liable to be accused of wrongdoing. The study adopted the upper echelons theory suggesting that CEOs with higher levels of masculinity will negatively affect financial reporting output. Based on this background, the following hypotheses was formulated:

H1: CEO facial masculinity is positively associated with earnings management.

CEO Accounting Background

Serval studies have been conducted to investigate the relationship between CEO's accounting background and earnings management (Bouaziz et al., 2020; Kouaib et al., 2018). Different studies have also examined

CEO expertise as a crucial personal characteristic in different contexts (Jiang et al., 2013; Kouaib et al., 2018; Rashid, 2020; Zouari et al., 2012). Bouaziz et al. (2020) investigated the influence of CEO characteristics on the discretionary accrual earnings management based on a sample of 151 French firms listed on the CAC ALL shares index during 2006 to 2015. They concluded that there was an insignificant influence of CEO experience on discretionary accruals of French corporates. However, Matsunaga and Yeung (2008) investigated the impact of employing a CEO who previously worked as a CFO on corporates' financial reporting and transparency policies. Their results revealed that firms led by ex-CFOs are less likely to utilise accrual earnings management because they adopted conservative accounting policies. As a result, CEOs with financial and/or accounting knowledge are less likely than their counterparts to manipulate profitability using accruals. According to Rashid (2020), having competent accountants on top management is beneficial. Similarly, Jiang et al. (2013) reported that CEOs with accounting and financial expertise are less likely to be involved in earnings management. In the same context, Plumlee and Yohn (2010) advocated that CEOs with greater experience can effectively forecast future earnings and assets for the unit, as well as comprehend and apply legislation, regimes, and generally accepted accounting standards to create financial statements in the future.

Ngo and Nguyen (2022) indicated that CEOs with financial accounting knowledge, on the other hand, gain greater confidence than novice CEOs, leading them to forecast higher profitability and apply positive accounting theories to achieve their goals. Their findings revealed that CEOs with financial and accounting backgrounds have more impact and intervention in earnings management, lowering FRQ. This behaviour can be explained by the fact that CEOs understand not only financial and accounting policies, but also how to manipulate earnings management. According to Zouari et al. (2012), there is a positive and significant link between CEO accounting and financial expertise and earnings management. Similarly, Kouaib et al. (2018) advocated that a CEO's accounting and financial expertise could enhance the reporting and manipulations, because CEOs try to enhance their accounting and financial expertise from their practice. In the same context, Li et al. (2016) revealed that real EM is positively associated with CEO's accounting and financial expertise because CEOs, who have more experience in accounting and finance, have the ability to

earnings manipulation. Kouaib et al. (2018) aimed to assess the moderating effect of IFRS adoption on the association between CEO accounting and financial expertise and earnings management in 302 European companies from 2000 to 2014. The results indicated that CEO's accounting and financial expertise are negatively associated with accruals-based earnings management and positively associated with real earnings management, and IFRS adoption reduces positively the influence of a CEO accounting and financial expertise on earnings management. Based on this background, the following hypotheses was formulated:

H2: CEO with accounting background is more likely associated with earnings management.

CEO Turnover

Ali and Zhang (2015) investigated how CEOs' incentives to manage their corporates earnings have changed over time. They reported that earnings are more likely to be overstated in the early years of a CEO's tenure than in the later years, and that this link is less for firms with more institutional ownership. This is consistent with the view that CEOs' incentive to overstate their firms' earnings in the early years of their employment in order to favourably affect the market's impression of their ability. CEOs with greater ability are more likely to withstand repeated retention/dismissal choices during their early years as CEO, establishing a high-ability reputation. As a result, these CEOs will be motivated to avoid overstating earnings in order to protect their reputation. Ali and Zhang (2015) found that earnings overstatement is much higher in the CEOs' final year in office than in their previous years in office, but only after controlling for earnings overstatement in their early years in office.

Putri and Rusmanto (2019) assessed how CEO attributes influence earnings per share (EPS) and earnings management of 104 manufacturing corporates listed on the Indonesian Stock Exchange from 2013 to 2017. The findings demonstrated that the CEO's tenure has a significant effect on EPS. However, it exhibits an insignificant effect on accrual earnings management. Hu et al. (2013) aimed to provide evidence on how tenure affects earnings management. They find that when managers first start out in top management positions, they will be cautious with their reported

earnings, but will become more aggressive over time. They will become conservative again and disclose earnings less aggressively if they reach the maximum degree of earnings management. Accordingly, there is U-shaped association between tenure and earnings management.

Setyawan and Anggraita (2018) looked at how CEO career considerations affect earnings management in a sample of Indonesian corporates from 2012 to 2014. They advocated that newly appointed CEOs have been shown to employ real and accruals earnings management to raise profits early in their tenures, but CEOs departing their posts utilise solely real earnings management to increase earnings in their final year. According to the findings, CEOs like to employ actual earnings management over their tenures. Similarly, Ali and Zhang (2015) indicated that CEOs overestimate reported accounting earnings in the start of their term rather than towards the end. This is due to new executives must demonstrate their performance to stakeholders early in their employment to gain recognition and job security. Nurmayanti and Rakhman (2017) examined whether the CEO's background and tenure have an impact on earnings quality. They reported that firms with insider CEOs report higher-quality earnings than firms with outsider CEOs using data from the Indonesia Stock Exchange between 2012 and 2014. Further, they demonstrated that when CEO tenure grows and executives gain more expertise, the impact of CEO on earnings quality diminishes. Accordingly, the following hypotheses was developed:

H3: CEO turnover is more likely associated with earnings management.
CEO Race

Several studies have investigated the role of ethnic groups in different countries from different perspectives (Elsheikh et al., 2022; Ghazali et al., 2019; Yen, 2013). For example, Yen, (2013) reported that ethnic Chinese family firms dominate the economies of Singapore, Taiwan, and Hong Kong, and they are a significant minority in Indonesia, Malaysia, the Philippines, and Thailand. In countries like the United States of America, Canada, South Korea, and Japan, ethnic Chinese family enterprises are booming. In another context, Malaysia is a multi-ethnic society dominated by Chinese and Malays in terms of economics and politics. Malaysian people has a diverse society with each sector maintaining its own ethnic identity and values (Hashim, 2012). The diversity of ethnic differences among different races on boards of directors, including Malay, Chinese, Indian, and others,

was explored by (Marimuthu, 2008). The study concludes that organisations may be vulnerable to a dangerous practice known as "groupthink," which can lead to strategic decisions being made incorrectly, especially when board members are of the same ethnic group.

Hashim (2012) investigated the relationship between ethnicity and financial reporting quality, measured using a discretionary component of the accrual quality model. The study reported that financial reporting quality is not influenced by the race of the chairman and the race of the CEO. Surprisingly, the results of her study indicated that organisations with a majority of Malay directors had greater financial reporting quality. Similar findings also reported by Haniffa and Cooke (2002). They provided evidence on the extent of race influence on voluntary disclosure in annual reports of Malaysian listed companies. The results indicated that the number of Malay directors on the board was shown to be a significant cultural element.

Given that all Malays are Muslims, more disclosure in enterprises dominated by Malay directors could be linked to Islamic business norms, which advocate transparency in business. Another rationale could be to legitimise their (Malay directors') function by appeasing numerous interest groups, including the government, in order to maintain a powerful voice at both the governmental and institutional levels. As a result, having Malay directors on a company's board of directors and audit committees may inhibit opportunistic earnings management. However, Haniffa and Cooke (2002) found that the Chinese are more independent and secretive in their disclosure, which is attributed to their entrepreneurial abilities, that have a stronger impact on the Malaysian economy. While Abdul Rahman and Mohamed Ali (2006) did not find conclusive evidence on the link between ethnicity and earnings management, Hashim (2012) reported a positive and strong relationship between racial composition and accrual quality supporting the political cost theory argument that ethnic minority Chinese are more likely to engage in earnings management practices. This may be due to businesses managed by ethnic minorities are more likely to face political repercussions for declaring big profits. Hence, the following hypotheses was formulated:

H4: Non-bumiputra CEO is more likely associated with earnings management.

Figure 1 presents a theoretical framework for the study of the relationship between CEO characteristics including CEO's masculinity (facial-width-height-ratio and testosterone level), CEO accounting background, CEO turnover, and CEO race and earnings management. The study was based on three basic theories in psychology and commercial science research (i.e., Upper Echelons Theory, Agency Theory, and Hofstede Theory).

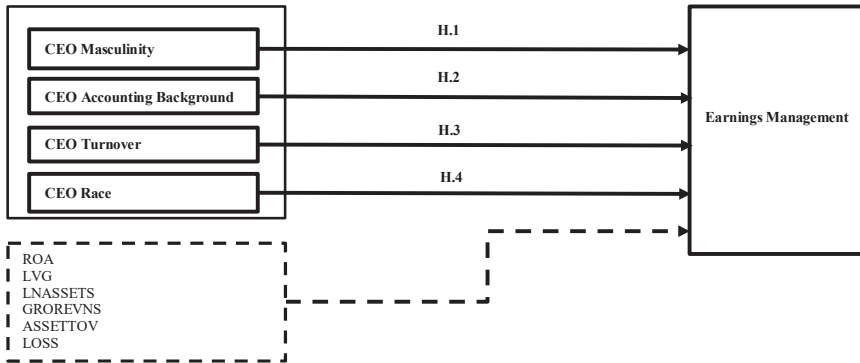


Figure 1: Theoretical Framework of the Study

The first theory in this study was the Upper Echelons Theory postulated by Hambrick and Mason (1984). The Theory confirms that corporate organisational results are greatly affected by the traits and attributes of executives, which -in turn- affect their decision-making. The CEO's characteristics and choices explain a part of the organisation's performance, as Hambrick and Mason (1984) postulated. Empirical studies also documented that the preferences, personalities, and characteristics of top managers impact decisions and outcomes at the firm level (Ham et al., 2018; Kamiya et al., 2019). The second theory was the Agency Theory that employs a framework which includes the relation between executives' behaviour, incentives, and information systems (Lambert, 2001). Graham et al. (2005) found that managers take economic actions to maintain accounting appearances. The presence of these practical biases impacts the undertaken efforts and firm outcomes.

The third theory was Hofstede's Cultural Dimensions Theory, a framework used to study cultural differences among countries and identify how business is done across different cultures (Hofstede, 1980). In other

words, the Theory is used to differentiate between the cultures of different races and examine cultural dimensions to assess their impact on a business environment. Hofstede's Theory demonstrates the influence of a society's culture on its members' values and indicates how these values are linked to behaviour (Adeoye & Tomei, 2014). Gray (1988) contends that Hofstede's (1980) cultural dimensions influence a country's accounting system in two ways: through their influence on a country's institutions, such as its capital markets, and through their influence on accounting values, such as conservatism, and earning management shared by members of a country's accounting subculture. After Gray's Model, many accounting studies relied on Hofstede's Theory to clarify the differences in the culture of races on financial performance and company results (Elsheikh et al., 2022; Hofstede, 2011; Seno et al., 2021).

METHODOLOGY AND DESIGN

Data and Sample

The data was collected from 2009 to 2019. Annual reports of Malaysian companies were chosen to extract financial and CEO data including nationality, age, date of appointment, educational status, gender, and race. The facial photographs of the CEOs were captured using python software to capture the fWHR effectively. The data were collected for male CEOs. From 794 companies listed in Bursa Malaysia, this study selected 260 companies as the total sample. This represented 32.74% of the companies listed on the Bursa Malaysia as of 31st December 2019. The sample size was determined from the sample size determination table based on Krejcie & Morgan (1970), which calculates a sample size based on a probability error below 5% ($p < 0.05$). For sample selection, this study used a systematic random sampling method due to the large size of the population. The systematic sampling method includes the determined sample size based upon the total population, the sample selected based on intervals of 3, and the starting point of the sample randomly generated by software (Microsoft Excel).

At the initial sample, 260 companies were selected, the 405 CEOs, and 2860 years observations. Following Lefevre et al. (2013), the fWHR is only valid for men as a measure of masculinity, according to biological studies,

and not for women. Accordingly, 12 companies with female CEOs and 79 companies that had non-compliant or available photos were excluded from the sample. This resulted in a final sample of 181 companies with 273 CEOs, and 1,611 years observations. The sample by race consisted of two categories of Bumiputra and non-Bumiputra. Bumiputra comprised of 88 Malay CEOs, and non-Bumiputra included 156 Chinese CEOs, 5 Indian CEOs, and 24 other CEOs. Following prior study by Hashim (2012), Bumiputera refers to only Malays as they form the majority and such categorisation may be useful for the analysis.

Variable’s Definition and Measurement

Earnings management was measured using Modified Jones Model. For example, Lai et al. (2018) used non-discretionary accruals by Modified Jones Model as a proxy for EM. According to their study, the composition of total accruals is as follows:

$$\frac{TACC_t}{TASST_{t-1}} = \beta_1 \left(\frac{1}{TASST_{t-1}} \right) + \beta_2 \left(\frac{(\Delta Revenues_t - \Delta Receivable_t)}{TASST_{t-1}} \right) + \beta_3 \left(\frac{\Delta PPE_t}{TASST_{t-1}} \right) + EMMJ_t \quad (1)$$

Where $TACC_t$ is total accruals, $TASST_{t-1}$ represents lagged total assets, $\Delta Revenues_t$ is the changes in revenues between year t and year t-1, $\Delta Receivable_t$ is the total receivables in year t less the total receivables in year t-1, ΔPPE_t presents an increase (decrease) in the property plant and equipment at the end of year t, and $EMMJ_t$ is the residual term of the regression, represents the levels of earnings management by discretionary accruals. To examine the level of earnings management, we used the absolute value of the discretionary accruals of Modified Jones Models (Lai et al., 2018).

The fWHR is used as the main proxy for facial masculinity. There are two calculation methods of this ratio, first, the distance between the left and the right zygion -the cheekbones- (bizygomatic width) divided by the distance between the upper lip and the midpoint of the inner ends of the eyebrows (upper facial height) (Kamiya et al., 2019; McCormick et al., 2008). The second way, some researchers, such as Ahmed et al. (2019),

Elsheikh et al. (2022), Jia et al. (2014) and Lefevre et al. (2013), measured the upper facial height in a slightly different manner, in that they measure the distance between the upper lip and the highest point of the eyelids. The current study measured fWHR by the distance between the left and right zygion (the cheekbones). Further, following Ahmed et al. (2019), the following regression equation was used to measure the expected level of testosterone:

$$\sqrt{\text{Testosterone}_{it}} = \alpha + \beta_1 \text{fWHR}_i + \beta_2 \log(\text{Age}_{it}) + \varepsilon_{it} \quad [2]$$

Following is Table (1) that summarizes variables' definition, measurement.

Table 1: Variables' definition

Variable	Symbol	Formula / Definition
Dependent Variables		
Discretionary accruals	EMMJ	A proxy for earnings management
Independent Variables		
Facial width-to-height ratio	fWHR	Distance between left and right zygion / vertical distance from the upper lip to the lower point of the eyebrows
Testosterone	TESTN	Expected levels of testosterone according to the equation no. 2
Accounting background	ACCBG	A dummy variable equals one if the CEO holds a degree in accounting and zero otherwise
CEO turnover	CEOTURNOVER	A dummy variable equals one if a CEO has changed and zero otherwise
Race / Ethnicity of CEO	CEORACE	A dummy variable equals one if a CEO's race is Bumiputra and zero otherwise
Control Variables		
Size	LNASSETS	Natural logarithm (Total Assets)
Performance	ROA	Return on Assets
Financial Leverage	LVRG	Total Liabilities / Total Assets
Asset Turnover	ASSETTURNOVER	Total Revenues - Total Assets
Revenue Growth	GROWTHREVENUES	(Total Revenues - Total Revenues _{t-1}) / Total Revenues _{t-1}
Loss	LOSS	A dummy variable equals one if net income is negative and zero others.

Model

The following model is used to estimate the relationship between CEO characteristics and earnings management.

$$\begin{aligned}
 EMMJ_{it} = & \alpha + \beta_1 CEO_{masculinity}_{it} + \beta_2 ACCBG_{it} + \beta_3 CEOTURNOVER_{it} \\
 & + \beta_4 CEORACE_{it} + \beta_5 LNASSETS_{it} + \beta_6 ROA_{it} + \beta_7 LVRG_{it} \\
 & + \beta_8 ASSETTURNOVER_{it} + \beta_9 GROWTHREVENUES_{it} + \\
 & \beta_{10} LOSS + \varepsilon_{it} \quad [3]
 \end{aligned}$$

RESULTS

Descriptive Statistics

Table 2 demonstrates the results of descriptive statistics in the form of mean, median, maximum, minimum, and standard deviation. The results showed that EMMJ had a mean of .115 with a minimum of 0.00, maximum of 1.437, and standard deviation of .0152. Further, the results indicated that the measures of masculinity (fWHR and TESTN) had a slight variation across the sample. fWHR exhibited a mean of 1.87 with a minimum of 1.48, maximum of 2.35, and a standard deviation of 0.14. This indicated that fWHR of CEO ranged between 1.48 and 2.35 with an average of 1.87. Similarly, the TESTN level of CEOs across the sample ranged between a minimum of 4.79 and a maximum of 9.75 with an average of 6.73. This indicated a slight deviation across the TESTN levels among the CEOs, which was indicated by the value of standard deviation (0.70). In the same context, ACCBG had an average of 0.27, which meant that about 27% of the CEOs had an accounting background. The results also showed that CEOTURNOVER had an average of 0.45, which meant that about 45% of the CEOs changed their tenure. Finally, the results showed that CEORACE had an average of 0.265, which meant that Bumiputra CEO observations represented 26.5% of total sample.

Table 2: Descriptive statistics

Variable	Mean	Median	Maximum	Minimum	Std. Dev.
EMMJ	0.115	0.066	1.437	0.000	0.152
fWHR	1.874	1.874	2.353	1.484	0.138
TESTN	6.651	6.733	7.989	4.785	0.565
ACCBG	0.266	0.000	1.000	0.000	0.398
CEOTURNOVER	0.645	1.000	1.000	0.000	0.431
CEORACE	0.265	0.000	1.000	0.000	0.408
ROA	0.045	0.045	0.731	-0.814	0.103
LVRG	0.447	0.447	12.574	0.005	0.335
LNASSETS	20.255	20.255	25.910	6.846	1.819
GROWTHREVENUES	-0.037	0.035	1.000	-29.305	0.900
ASSETTURNOVER	0.810	0.683	7.158	0.000	0.731
LOSS	0.196	0.000	1.000	0.000	0.379

Correlation Analysis

Table 3 introduces Pearson correlation for the variables of the study. The results showed that EMMJ had a positive significant correlation at the level of 1% (p value = $0.000 < 0.01$) with all variables except for fWHR, ACCBG, ROA, LVRG, LNASSETS, and GROWTHREVENUES. This indicated that these variables had a positive direct correlation with EMMJ. The results also showed that TESTN was correlated positively with EMMJ at the level of 1% (p value < 0.01). Further, the results indicated that both LOSS, and ASSETTURNOVER exhibited a positive and significant correlation with EMMJ. However, LVRG and GROWTHREVENUES indicated an insignificant correlation with EMMJ. Overall, the results showed that the highest value of correlation was 0.119 that was observed in the case of correlation between EMMJ and LNASSETS. This indicated the absence of multicollinearity. Accordingly, there was no evidence multicollinearity problem as the correlation values between the independent variables was less than 0.70.

Table 3: Correlation Matrix and Multicollinearity Diagnostics

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
(1)EMMJ	1											
(2)WHR	-0.010	1										
(3)TESTN	0.073***	0.689***	1									
(4)ACCBG	-0.026	0.007	0.041*	1								
(5)CEOTURNOVER	0.094***	0.008	0.122***	0.027	1							
(6)CEORACE	0.058**	0.059***	0.021	0.069***	0.112***	1						
(7)ROA	-0.041*	0.029	0.059***	-0.005	0.005	-0.079***	1					
(8)LYRG	-0.001	0.010	-0.027	0.061***	0.055**	0.101	-0.045**	1				
(9)LNASSETS	-0.119***	0.101***	-0.015	0.118***	0.155***	0.262***	0.137***	0.080***	1			
(10)GROWTHREVENUES	-0.023	0.000	-0.001	-0.012	0.026	0.008	0.100***	0.023	0.043*	1		
(11)ASSETTURNOVER	0.084***	-0.016	0.023	0.003	0.032	-0.096***	0.257***	0.087***	-0.156***	0.089***	1	
(12)LOSS	0.074***	-0.022	-0.019	0.021	0.022	0.042*	-0.571***	0.028	-0.242***	-0.102***	-0.064***	1

(*), (**), and (***) refer to the three levels of significance (10%, 5% and 1%, respectively).

Regression Results

Table 4 presents an estimation of fixed effect model for the impact of fWHR (as a proxy of CEO facial masculinity), CEO background, CEO turnover, and CEO race on EM, measured by modified Jones model. The results showed that fWHR had a significant impact on earnings management (p value $< .05$). This signified that earnings management existed in companies that had CEOs with a high level of masculinity. This effect was positive indicated by a positive coefficient ($\beta = 0.071$), which indicated that the increasing dimension of fWHR of a CEO, was associated with higher level of earnings management. This is similar to the findings of Jia et al. (2014) and consistent with several studies which noted that wider face was associated with aggressive behaviour (McCormick et al., 2008), unethical behaviour (Haselhuhn & Wong, 2011) and sensation seeking (Campbell et al., 2010). The results further showed that ACCBG of a CEO had an insignificant impact on EM. Interestingly, the results indicated that CEOTURNOVER had a statistically significant positive impact on earnings management at the level of 1% ($\beta = 0.076$, p value $< .001$). This signified that CEOTURNOVER had a direct relationship with earnings management and CEO may manage company earnings in order to increase their turnover. This led to a conclusion that higher CEO turnover ratio was more likely to engage in earnings management practices. Importantly, CEORACE demonstrated a statistically significant negative influence on earnings management at the level of 10% ($\beta = -0.020$, p value $= 0.071$).

This indicated that Bumiputera had a negative impact on EM. This indicated that race could play a significant role in earnings management activities. Bumiputera indicates Malay CEOs, which means that companies run by Malay CEOs are less likely to be involved in earnings management practices compared to non-Bumiputera groups. Our findings on CEO race are consistent with previous research that found differences in earnings management among races (Ghazali et al., 2019; Hashim, 2012; Wan Mohammad et al., 2016) this paper is extended to incorporate the implication of ethnicity on board and audit committees' effectiveness. Design/methodology/approach: Using a sample of 201 firms from fiscal year 2004-2009, the data set consists of a total of 1,206 firm-year observations. Analysis is carried out using correlation analysis, multiple and logistic regression analyses. Findings: The findings reveal that board and audit

committees’ effectiveness is positively associated with earnings management pre- and post-Revised Malaysian Code on Corporate Governance (2007). With regards to control variables, the results showed that company size, financial performance (ROA) had a significant positive impact on earnings management (p value $< .01$). This signified that large corporations with a higher performance ratio may have greater levels of EM compared to small companies with low performance.

In addition, the results revealed that LVRG had an insignificant (p value $= 0.134 > 0.10$) positive impact ($\beta = 0.010$), on EM. Other control variables, GROWTHREVENUES, ASSETTURNOVER and LOSS exhibited a positive significant effect on EM (p value $< 5\%$, 1% and 1% , respectively), which indicated that companies with high growth revenues and high assets turnover were more likely to associate with earnings management activities. However, companies making loss are more possibly to associate with earnings management activities. Overall, the results exhibited that the model was fit which was indicated by a 1% level of significance (p value $= 0.000 < 0.01$). The adjusted R-squared was 23% which indicated that the variables in the model predicted and explained 0.26 of the variability of EM.

Table 4: Fixed Effect Estimation – The impact of CEO fWHR and other Characteristics on EM

Variable	Coef.	St. Error	t-test	p-value	Sig
fWHR	0.071	0.030	2.367	0.018	**
ACCBG	0.004	0.007	0.536	0.592	
CEOTURNOVER	0.076	0.007	11.180	0.000	***
CEORACE	-0.020	0.011	-1.808	0.071	*
ROA	0.167	0.027	6.253	0.000	***
LVRG	0.010	0.006	1.498	0.134	
LNASSETS	0.019	0.003	6.481	0.000	***
GROWTHREVENUES	0.003	0.002	2.107	0.035	**
ASSETTURNOVER	0.013	0.005	2.747	0.006	***
LOSS	0.014	0.004	3.428	0.001	***
C	0.043	0.008	5.182	0.000	***
Fixed effects	YES	Year dummy		YES	

R-squared	34.3%	Adjusted R-squared	26.6%
F-statistic	4.457	p-value	0.000
Durbin-Watson stat	1.971		

Additional Analysis

To ensure the robustness and durability of our findings, we used an alternative measure of CEO masculinity (testosterone level). Table 5 provides an estimation of fixed effect model for the impact of testosterone on EM by modified Jones model. The results showed that TESTN had a statistically significant effect on EM at the 1% significance level of (p value = $0.000 < 0.01$). This effect was positive which was indicated by a positive coefficient ($\beta = 0.018$). This indicated that the increasing levels of TESTN of a CEO was associated with higher levels of earnings management. This was consistent with a wide variety of laboratory studies, which confirmed a positive and statistically significant relationship between testosterone levels and (e.g. aggression, deception skills, increased risk tolerance, sensation seeking, non-interchange trust, and cheating) (Apicella et al., 2008; Carré et al., 2009; Haselhuhn & Wong, 2011; Lefevre et al., 2013; McCormick et al., 2008) a putative marker of pubertal testosterone action, has been reliably linked with various facets of unsociable behavior in men. In order to elucidate the underlying mechanisms, a recent study by Geniole and colleagues (2014).

As found in the case of fWHR, accounting background of a CEO had no significant impact on EM. Similarly with the main regression results, CEO turnover had a significant positive influence on earnings management (p value $< .01$), which suggested that companies led by a CEOs with a greater turnover ratio were more likely to engage in earnings management practices, while CEORACE had a significant negative (p value = $0.000 < 0.01$, $\beta = 0.018$) influence on EM, suggesting that a non-Bumiputra CEO was more likely to be associated with EM practices (Ghazali et al., 2019; Hashim, 2012; Wan Mohammad et al., 2016) this paper is extended to incorporate the implication of ethnicity on board and audit committees' effectiveness. Design/methodology/approach: Using a sample of 201 firms from fiscal year 2004-2009, the data set consists of a total of 1,206 firm-year observations. Analysis is carried out using correlation analysis, multiple and logistic regression analyses. Findings: The findings reveal

that board and audit committees’ effectiveness is positively associated with earnings management pre- and post-Revised Malaysian Code on Corporate Governance (2007). With regards to control variables, the findings indicated that financial performance, leverage, company size, grows of revenues, assets turnover and marking loss have a positive influence on earnings management. Overall, the model was fit which was indicated by a 1% level of significance (p value = $0.000 < 0.01$). The adjusted R-squared was 26.3 % which indicated that the variables in the model predicted and explained 0.26 of the variability of EM.

Table 5. Fixed Effect Estimation – The impact of CEO TESTN and other characteristics on EM

Variable	Coef.	St. Error	t-test	p-value	Sig
TESTN	0.018	0.006	3.064	0.002	***
ACCBG	0.005	0.006	0.841	0.400	
CEOTURNOVER	0.074	0.018	4.150	0.000	***
CEORACE	-0.018	0.010	-1.792	0.073	*
ROA	0.138	0.035	3.894	0.000	***
LVRG	0.014	0.009	1.676	0.094	*
LNASSETS	0.022	0.005	4.319	0.000	***
GROWTHREVENUES	0.004	0.002	1.828	0.068	*
ASSETTURNOVER	0.015	0.009	1.687	0.092	*
LOSS	0.012	0.005	2.336	0.020	**
C	0.048	0.014	3.339	0.001	***
Fixed effects	YES	Year dummy		YES	
R-squared	34.0%	Adjusted R-squared		26.3%	
F-statistic	4.390	p-value		0.000	
Durbin-Watson stat	1.968				

CONCLUSION

The current research looked into the link between earnings management and, CEO features and characteristics. This study investigated whether CEO facial masculinity, CEO accounting background, CEO turnover and CEO

race helps the predicting of earnings management. The face width-to-height ratio (fWHR) and testosterone hormone levels (TESTN) were used to assess CEO masculinity. The current research used 260 companies listed in Bursa Malaysia from 2009 to 2019 with a final sample 1,611 observations. The Python programme was used to calculate fWHR and forecast testosterone levels in CEOs based on their age. The results were estimated using panel data analysis with a fixed effect model. The data demonstrated that fWHR has a significant impact on EM at the 5% significance level, and that this effect is positive, implying that a CEO with a higher fWHR dimension is associated with a higher level of earnings management. TESTN also has a statistically significant effect on EM, according to the findings. This result is positive, indicating that a CEO's increasing TESTN levels are linked to higher levels of earnings management. The findings also revealed that CEO turnover and CEO race had a strong significant impact on earnings management. Companies led by a CEO with a greater turnover ratio are more likely to engage in earnings management activities. The findings show that CEORACE has a significant negative influence on earnings management, implying that race may play a significant role in earnings management which means that companies run by Bumiputera CEOs (Malay CEOs) are less likely to involve in earnings management activities compared to non-Bumiputera groups.

This study is the first to look into earnings management with biologically based CEO traits. As a result, it provides new insights and contributions to accounting literature, as well as practical consequences for investors, board members, auditors, analysts, and academics. Furthermore, the findings help to resolve a discrepancy in previous findings on the impact of CEO facial masculinity on financial reporting quality and other financial characteristics. Despite the study's important discoveries and contributions, there are certain limitations, and the findings should be viewed in context. Female CEOs, for example, are omitted because previous research has shown that fWHR does not apply to women. Furthermore, the sample included of non-financial businesses, therefore the results may not apply to other sort of businesses. As a result, future research should focus on this topic in a strictly financial setting. Another area of future research that could be explored is the quality of financial reporting and earnings management.

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